

7b
Pi

pc glass blocks

for commercial - industrial -
educational - residential buildings

controlled daylighting

low maintenance

high insulation value

privacy and protection

eliminate surface condensation

P I T T S B U R G H pc C O R N I N G

pc glass blocks offer many advantages walls and industrial, educational and

Basically, there are two types of PC Glass Blocks—Functional and Decorative. *Functional* blocks direct or diffuse daylight and thus make it work for the occupants by providing *controlled* lighting throughout the rooms of a structure. *Decorative* blocks, as the name implies, are used for decorative applications or as accents in the design of a structure. And just recently, Pittsburgh Corning has developed Color Glass Blocks, available in twelve colors and three sizes which greatly extend the design versatility of this material. (For complete information on PC Color Glass Blocks, write for Booklet GB-110.)

FOR WINDOW AREAS

benefits

insulation plus low maintenance

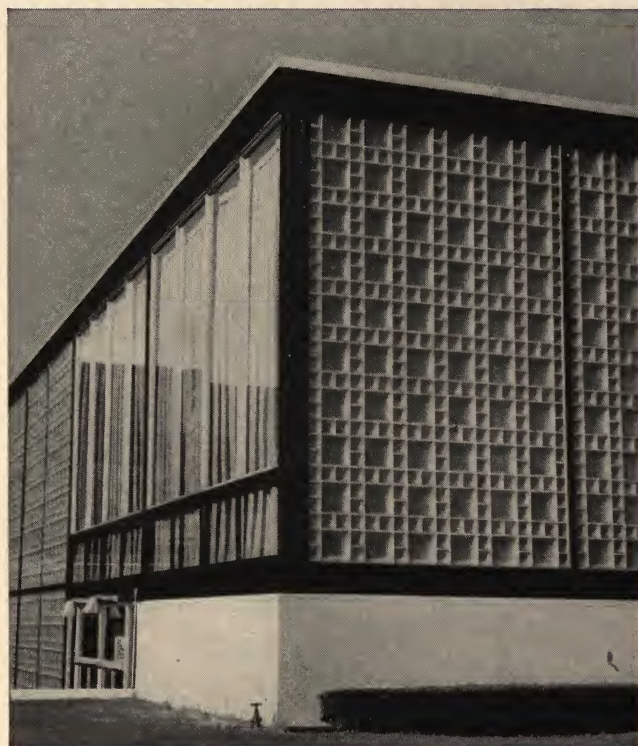
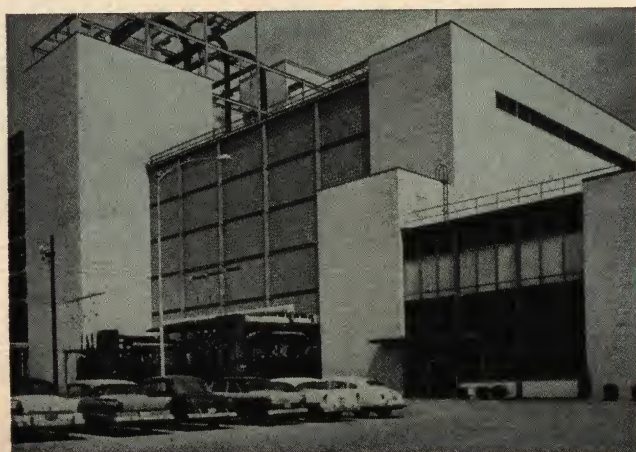
PC Glass Blocks have good thermal insulating value (page 6) which helps reduce heating and cooling costs and almost eliminates surface condensation. This fact, coupled with the low maintenance cost (i.e., little washing, sash painting, re-puttying, etc.), makes glass block ideal for both sash replacement and curtain wall use as well as for decorative applications. With proper selection of patterns (pages 4-5) the desired degree of privacy can be built right into the structure without expensive drapings and shading.

security and low cost

These two considerations are important. Glass blocks, being difficult to break, deter against entry. One plant, for instance, was able to reduce the number of armed guards considerably and eliminate protective fences by installing glass blocks in place of conventional windows.

A prime consideration in today's construction economy is one of cost. No matter what the installation—a simple panel replacing a window, or an entire curtain wall—glass blocks offer many advantages at less cost than other building materials. Why? Because they are installed by only one trade—the masons—and the inside and outside of the wall or panel are finished in one operation.

Cromby Station, Philadelphia Electric Company, Philadelphia
Consulting Architects: Harbeson, Hough, Livingston and Larson A.I.A.,
Philadelphia, Pennsylvania



Corning Glass Center
Corning, New York
Architects: Harrison and Abramovitz, A.I.A., New York

FOR CURTAIN WALLS

In the curtain wall concept of today's architecture, certain basic design considerations should be answered. When these considerations include color and texture, reasonable cost and low maintenance, good insulation value, privacy and protection, and controlled daylighting, a curtain wall of PC Glass Block may be the solution.

both window and wall combined

No other material offers both *controlled daylighting* and a curtain wall material within itself. A range of eight PC functional glass blocks actually permits the selection of just the correct block to match the application . . . while at the same time providing the sharp, clean appearance desired in contemporary building.

creativity in design

To these advantages inherent in glass block, Pittsburgh Corning has recently added a third dimension . . . that of color. The addition of ceramic color-faced blocks is particularly important in the design of a curtain wall. The architect can now create patterns of color while retaining integrity of material. Consider glass block, Pittsburgh Corning Glass Block, when designing your next curtain wall.

(For more data on PC Glass Block Curtain Walls, see our insert in Section 3e/Pi of Sweet's Catalog or write for Booklet GB-110.)

For window areas, curtain commercial sash replacement

FOR SASH REPLACEMENT

Think a minute . . . What is the most distinguishing mark of an old, factory-type building? Usually . . . the windows.

And windows are an expensive maintenance item. They must be continually repainted, and it doesn't take long for the layers of paint to blister and crack—particularly in areas of acid and industrial fumes. Still further, the sash must be calked or puttied regularly to prevent heat loss . . . a costly waste! Finally, standard sash may rust or rot, causing warpage and window breakage. All this, of course, detracts from the appearance of the building and reduces property value.

Two more serious drawbacks overshadow all of the above items: uncontrolled daylighting comes through standard sash and heat loss is very high.



Note the controlled lighting which glassblock panels afford. This replacement installation is at S. Twitchell Company, Camden, New Jersey.

Why not investigate the advantages of using PC Glass Block on your next sash replacement job? Illustrated are two recent "before" and "after" replacement jobs. Remember, you benefit not only from improved appearance, but also lower operational costs. With PC Glass Blocks used for sash replacement, you enjoy:

Ease of Installation

(Will fit most existing window openings)

Better Daylighting

(Improved worker efficiency)

Lower Heating and Cooling Costs

(Can be cut as much as 40%)

Lower Maintenance Costs

(As much as 90%)

Privacy and Protection

(Reduces or eliminates many security measures)

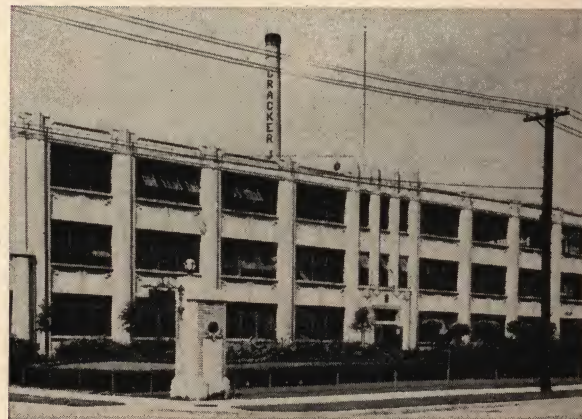
The Allison School, Wilkinsburg, Pa., before sash replacement.



Note the tremendously improved appearance of the building after replacing the old sash with PC Glass Blocks.



This was the Cracker Jack Co., Chicago, Illinois, plant before replacement of rotted sash.



Cracker Jack saved \$250 per window opening per year in maintenance costs alone using PC Glass Blocks as replacement for old windows.



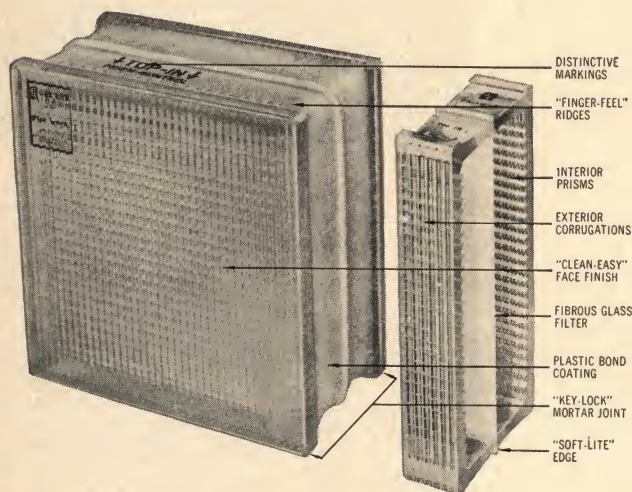
FUNCTIONAL GLASS BLOCKS

PC Functional Glass Blocks are available both in *light-directing* blocks which bend incoming light toward the ceiling, and in *light-diffusing* blocks which spread light in all directions. A choice of three degrees of light control is available in both types of block depending on the building orientation.

Building orientation is an important factor. For example, glass blocks would be used on East, South or West exposures to control and reduce brightness of light to a comfortable level and to reduce radiant heat gain. On Northern elevations, glass blocks are used primarily to transmit light and reduce heat flow.

three degrees of control

The three degrees of control are obtainable by specifying—(1) Suntrol® for *maximum* control. These blocks have a pale green fibrous insert which reduces brightness by 35 per cent and instantaneous heat gain by 25 per cent over standard glass blocks. (2) "LX" for *medium* control of brightness and solar heat gain. These blocks have a white fibrous insert which like Suntrol is an integral part of the block. (See illustration below.) (3) Regular Block where only a *normal* degree of control is necessary. These blocks contain no fibrous insert.



functional block features

Soft-Lite® edge, a Pittsburgh Corning exclusive feature, is white opal glass fused to the inside edge seal of the two glass block halves. It reduces glare and gives panels of blocks a uniform brightness. All PC functional blocks designed for sun exposures have this feature.

The Bristol non-sun exposure block does not contain this feature and is not recommended where direct sun rays will hit the panel. Every PC functional block is stamped on the top edge with distinctive markings which identify the pattern and indicate the inside and outside face. Proper positioning is most important if the blocks are to function properly.

Other features include a "Key-Lock" mortar joint and plastic bond coating for watertight construction, a "Clean-Easy" face finish for easier clean-up, and "Finger-Feel" ridges pressed into the top mortar edge of all functional blocks to further assist the mason.

light-directing blocks (used above eye-level only)



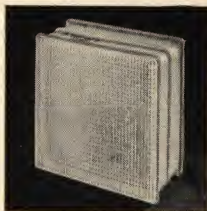
Prism B—Recommended on sun or non-sun exposures for *maximum* light transmission and moderate brightness and solar heat control. Available only in an 8-inch square.

Prism B LX—Same design as Prism B except with a white fibrous insert to reduce glare and solar heat gain. Recommended on sun or non-sun exposures where *medium* light transmission, brightness control, and solar heat gain are desired. Available in 8 and 12-inch squares.

Prism Suntrol®—Same design as Prism B except with a pale green fibrous insert for reducing glare and solar heat gain to a greater degree. Recommended on sun or non-sun exposures where maximum control of brightness and solar heat and *minimum* light transmission are required. Available in 8 and 12-inch squares.

light-diffusing blocks

(used above or below eye-level)

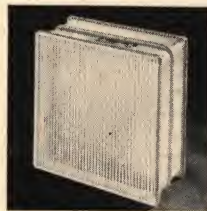


Essex—Diffuses sunlight in all directions. Recommended on either sun or non-sun exposures where a *maximum* of light transmission and moderate brightness and solar heat control are acceptable. Available only in an 8-inch square.

Essex LX—Same design as Essex except with white fibrous insert to reduce glare and solar heat gain. Recommended on sun exposures where *medium* light transmission and brightness control, and solar heat control, are acceptable. Available in 8 and 12-inch squares.

Essex Suntrol®—Same design as Essex except with a pale green fibrous insert for reducing glare and solar heat gain to a greater degree. Recommended on sun or non-sun exposures where maximum control of brightness and solar heat and *minimum* light transmission are desired. Available in 8 and 12-inch squares.

general purpose blocks



Bristol—for non-sun exposures

Bristol LX—for sun exposures

When it is not practical to combine the various functional blocks, we suggest the use of these blocks throughout the building. Both are light-diffusing blocks and are excellent where high, cluttered ceilings will not reflect enough light and rule out the use of light-directing blocks. Available only in 8-inch squares.

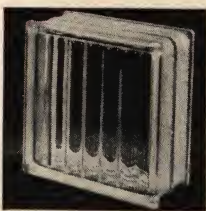
Actual block dimensions:
 6-inch— $5\frac{3}{4}" \times 5\frac{3}{4}" \times 3\frac{3}{8}"$
 8-inch— $7\frac{3}{4}" \times 7\frac{3}{4}" \times 3\frac{3}{8}"$
 12-inch— $11\frac{1}{4}" \times 11\frac{1}{4}" \times 3\frac{3}{8}"$
 4 x 12— $3\frac{3}{4}" \times 11\frac{1}{4}" \times 3\frac{3}{8}"$

DECORATIVE BLOCKS

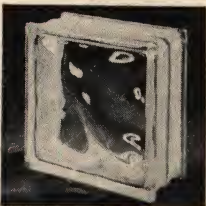
These blocks, as the name suggests, are intended solely for decorative purposes. They are not recommended where controlled daylighting is the important goal, but rather for installations where the decorative appearance of the panel outweighs its daylighting characteristics. Decorative blocks transmit plenty of light, but they don't control it as do the functional patterns.



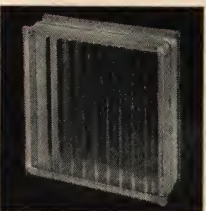
Argus—Gives high light transmission and good privacy. The outer faces are smooth and the rounded flutes on the inner faces are at right angles to each other. It can be laid with flutes on one side either horizontal or vertical. Available in 6, 8, and 12-inch squares.



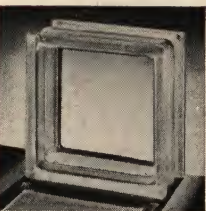
Argus Parallel Flutes—Gives high light transmission and fair privacy. It is the same basic block as the Argus, except that the flutes on both faces are parallel. This block can be laid with flutes vertical or horizontal. Available in 6, 8, and 12-inch squares. This pattern also available in 8-inch and 12-inch square with white "LX" insert.



Decora—Gives high light transmission and can be laid without considering which edge is either side or top. The design is pressed into the inner faces, and the outer faces of the block are smooth. This block is almost transparent and is not recommended for use on sun exposures. Available in 6 and 8-inch squares plain, and 12-inch only with the "LX" insert.



Saxon—Gives good light transmission and is uniformly bright in sunlight. It offers complete privacy. It has shallow, narrow reeds on its outer faces, parallel to wide flutes on the inner faces which are lightly etched. Usually it is installed with the narrow outer reeds vertical to make cleaning easy. Available in 12-inch squares only.



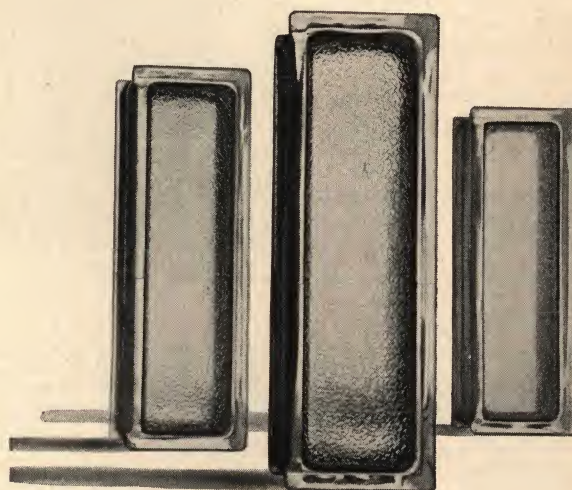
Vue—Gives high light transmission and good visibility through the block. It is frequently used in panels of other patterns to provide a vision area where desired. It can be laid without regard to which edge is side or top. Both the outer and inner faces are smooth and clear. Available in 8 and 12-inch squares.

THE NEW SIZE

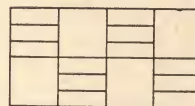
4 x 12

We thought of a lot of fancy names for this new PC Glass Block. We settled on what seemed most appropriate—the 4 x 12. This block is modular with all other standard size glass blocks of 6", 8", and 12" squares. The outside faces are smooth for practical reasons, but an acid-etched appearance gives character and texture to the interior faces. The product is available plain, and with white or green-tinted fibrous inserts. It is available also in twelve ceramic face colors. The sketches below show only a few ways in which the product can be integrated with standard blocks.

Actual block dimensions $3\frac{3}{4}" \times 11\frac{3}{4}" \times 3\frac{7}{8}"$



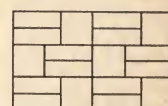
New design ideas using the 4 x 12



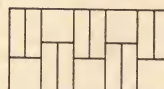
with 12 x 12



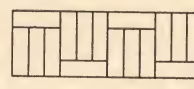
with 8 x 8



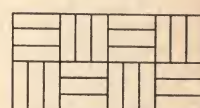
with 8 x 8



with 8 x 8



4 x 12 only



4 x 12 only

COLOR GLASS BLOCKS BY PITTSBURGH CORNING

NOW—TWELVE COLORS

Twelve ceramic face colors in three sizes now provide the Architect with a new medium for integrating color accents into the Glass Block Curtain Wall.

Enriching the present-day church with a quiet feeling of dignity and adding color highlights to the design of a contemporary building structure are only two of the countless possibilities

with this new product. The color range is listed below.

Pastel Blue · Pastel Green · Coral · Charcoal Gray
Walnut · Black · White · Deep Green · Deep Red
Deep Blue · Yellow · Orange

(For more information write for our Catalog GB-110 and for color chip sample card CGB-2).

6" and 8" Color Glass Block have color on the standard Decora pattern.
4 x 12 Color Glass Block are on the standard 4 x 12 pattern.

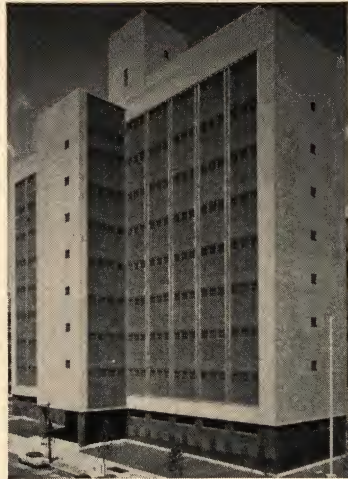
PC Color Glass Blocks available on Architect Specifications

6 x 9 SOLID GLASS BRICK

This solid glass unit was developed primarily for use in detention windows in prisons, jails, mental institutions, and many other applications such as jewelry stores and bonded warehouses. It has excellent daylighting characteristics yet gives privacy due to the etched surface on the inside. And its handsome appearance eliminates the "institutional" look of this type of structure. For more information on this product used in combination with steel sash, write for our folder, "Bayley-PC Guard Window Systems."



Photo at right shows a typical installation of Pittsburgh Corning Solid Glass Bricks. Note the impressive facade of the new Brooklyn House of Detention for Men, Brooklyn, New York. Architects, LaPierre, Litchfield and Partners, New York. Builders, Castagna and Sons, Incorporated, Manhasset, Long Island.



layout table

no. of blocks	block sizes		
	6"	8"	12"
1	0' 6"	0' 8"	1' 0"
2	1' 0"	1' 4"	2' 0"
3	1' 6"	2' 0"	3' 0"
4	2' 0"	2' 8"	4' 0"
5	2' 6"	3' 4"	5' 0"
6	3' 0"	4' 0"	6' 0"
7	3' 6"	4' 8"	7' 0"
8	4' 0"	5' 4"	8' 0"
9	4' 6"	6' 0"	9' 0"
10	5' 0"	6' 8"	10' 0"
11	5' 6"	7' 4"	11' 0"
12	6' 0"	8' 0"	12' 0"
13	6' 6"	8' 8"	13' 0"
14	7' 0"	9' 4"	14' 0"
15	7' 6"	10' 0"	15' 0"
16	8' 0"	10' 8"	16' 0"
17	8' 6"	11' 4"	17' 0"
18	9' 0"	12' 0"	18' 0"
19	9' 6"	12' 8"	19' 0"
20	10' 0"	13' 4"	20' 0"
21	10' 6"	14' 0"	21' 0"
22	11' 0"	14' 8"	22' 0"
23	11' 6"	15' 4"	23' 0"
24	12' 0"	16' 0"	24' 0"
25	12' 6"	16' 8"	25' 0"

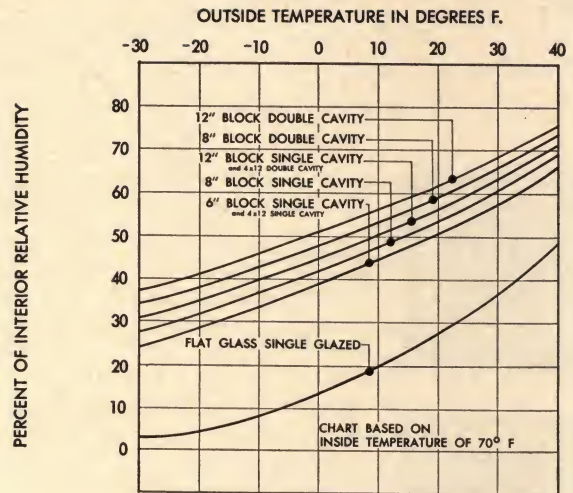
This table is based on Modular Coordination assuming $\frac{3}{8}$ " mortar joints in face brick and $\frac{1}{4}$ " mortar joints between glass blocks. For minimum required opening width, find table dimension and add $\frac{1}{2}$ ". For minimum required opening height, find table dimension and add $\frac{3}{8}$ " plus minimum lintel deflection.

Actual block dimensions: 6 inch size— $5\frac{3}{4}$ " x $5\frac{3}{4}$ "
8 inch size— $7\frac{3}{4}$ " x $7\frac{3}{4}$ "
12 inch size— $11\frac{3}{4}$ " x $11\frac{3}{4}$ "
4 x 12 size— $3\frac{3}{4}$ " x $11\frac{3}{4}$ "

All blocks are $\frac{3}{8}$ " thick.

PHYSICAL PERFORMANCE DATA

surface condensation chart



how to use the chart: To solve a typical problem, chart shows that with an inside temperature of 70°F. and relative humidity of 40%, it takes an outside temperature of 23° below zero to cause condensation on a panel of 12-inch double cavity LX blocks such as the Essex LX. Under the same conditions, condensation will form on a single-glazed flat glass window at 33° above zero.

thermal insulation values . . . the high insulation value of PC Glass Blocks is the result of two factors: first, the partial vacuum in each hermetically sealed block, and second, the fibrous glass insert in the LX and Suntrol Glass Blocks that creates two dead air spaces.

"U" values (coefficient of heat transmission)

glass block size and type	"U" (Btu./hr./sq. ft./°F.)
6" square—single cavity	0.60
8" square—single cavity	0.56
8" square—double cavity	0.48
12" square—single cavity	0.52
12" square—double cavity	0.44
4" x 12"—single cavity	0.60
4" x 12"—double cavity	0.52

sound reduction . . . the average sound reduction factor for PC Glass Blocks is 38.0 decibels, which is equal to the difference in noise level between an average factory and a quiet home.

weather resistance . . . PC Glass Block panels show no sign of deterioration under severe weather cycle tests, which consist of heating, water spraying and freezing the glass surface with temperatures varying from 155°F to -40°F.

wind load resistance . . . within recommended area limits (see pages 8 and 10) PC Glass Block panels will withstand a wind load of 20 pounds per square foot with a safety factor of 2.7. Twenty pounds per square foot is equivalent, approximately, to a 75 m.p.h. wind; 54 pounds per square foot to a 130 m.p.h. wind.

structural strength . . . 400 to 600 pounds per square inch is the ultimate compressive strength of a PC Glass Block panel when uniformly loaded. While this is higher than many masonry constructions, never use glass blocks for load bearing walls.

Solar, or radiant, heat gain through a fenestration can normally be considered for two circumstances. In air-conditioned buildings, both the rate of heat flow through the fenestration and the reradiation characteristics are important. These properties, for unshaded panels of 8" glass blocks, are shown in the accompanying table of instantaneous heat gain, which expresses a rate of heat flow, not total heat gain, for summer conditions.

The rate of heat flow, both radiant and conducted, through glass block panels is only 30%—75%, depending on pattern, of that through conventional glazing media. Because glass block panels have a relatively high mass, some of this heat flow is absorbed and reradiated diffusely. These factors should be taken into account in the design and sizing of the air-conditioning system.

In ventilated, but uncooled buildings, the summer time room temperatures in equivalent spaces fenestrated with either glass block or conventional materials will be quite similar, but there will be a lag in the temperature changes in the glass block fenestrated area. Under these conditions, the reradiation characteristics of glass block panels may cause the sensation of higher heat flow, and should be taken into account in the design and orientation of the glass block panels, and the type and method of ventilation. More complete information on the heat flow characteristics of glass blocks may be found in the current A. S. H. & A. E. Guide.

performance—lighting

exposure of panel	performance desired		light-directing block	light-diffusing block	sizes available	
	light transmission	brightness and solar heat control			8"	12"
sun	maximum	minimum	Prism B	Essex	■	
	medium	medium	Prism B LX	Essex LX	■	■
	minimum	maximum	Prism Suntrol	Essex Suntrol	■	■
non-Sun	maximum	minimum	Prism B*	Essex*	■	

*LX and Suntrol Blocks may be used on non-sun exposures with corresponding reduction in light transmission and increase in control of brightness and heat gain.

NOTE: Do not use light-directing blocks BELOW eye-level because they will throw light up into your eyes. EYE-LEVEL is considered to be 6 feet above the finish floor.

daylight illumination in foot candles*

fenestration type	feet from fenestration											
	non-sun exposure						sun exposure					
	5	10	15	20	25	30	5	10	15	20	25	30
glass block panels												
8" PRISM B	35	25	18	12	10	8	58	43	31	22	16	13
8" PRISM B LX	25	18	13	8	7	6	41	30	22	14	10	8
12" PRISM B LX	35	25	18	12	10	8	43	32	23	14	10	8
8" PRISM SUNTROL	16	11	8	5	4	3	27	20	14	9	7	5
12" PRISM SUNTROL	23	17	12	8	7	5	28	21	15	9	7	5
8" ESSEX	32	22	15	10	8	5	49	35	25	17	12	10
8" ESSEX LX	22	14	10	8	6	4	35	25	18	11	9	7
12" ESSEX LX	29	20	14	9	7	4	41	30	21	14	10	8
8" ESSEX SUNTROL	14	9	7	5	4	3	23	16	12	7	6	5
12" ESSEX SUNTROL	19	13	9	6	5	3	27	20	14	9	7	5
8" BRISTOL	35	24	16	10	7	4						
8" BRISTOL LX	22	16	11	7	5	3	30	22	16	11	9	8
glass block clerestory panels†												
(minimum sill height 9')												
8" PRISM B	38	26	16	14	9	7	55	45	30	22	13	8
12" PRISM B LX							41	30	18	13	8	6
shaded vision windows†												
SASH AND SHADES	12	9	6	5	4	3	13	8	5	4	3	2

*Daylight illumination on the work plane in footcandles for each 1000 footcandles on exterior plane of fenestration.

†All data assumes each fenestration equal to 25% of floor area. (Large panel + clerestory + vision window area = 75%) Reduce in proportion for smaller areas.

instantaneous heat gain (BTU/HR/SQ. FT.)

glass block types* and patterns	exposure of panel	sun time											
		8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	
		dry bulb temperature (outdoor) °F.											
		77	80	83	87	90	93	94	95	94	93	91	
TYPE I† ARGUS ARGUS PARALLEL FLUTES DECORA VUE	N	7	7	10	12	14	16	17	18	18	17	20	
	E	118	94	67	44	24	22	23	23	21	19	51	
	SE	70	76	69	56	41	23	18	18	17	16	13	
	S	8	17	29	39	42	46	42	33	23	19	15	
	SW	6	8	10	14	24	49	74	93	94	81	54	
	W	6	9	11	14	16	27	59	102	136	142	104	
TYPE II BRISTOL	N	7	7	10	12	14	16	17	18	18	17	20	
	E	109	85	66	43	24	22	23	23	21	19	15	
	SE	65	71	67	55	41	23	18	13	17	16	13	
	S	8	16	28	39	42	46	41	32	23	19	15	
	SW	6	8	10	14	24	48	72	88	89	77	52	
	W	6	9	11	14	16	26	58	96	127	134	97	
TYPE III BRISTOL LX	N	6	6	8	10	12	14	15	17	17	16	19	
	E	93	73	58	40	22	20	21	22	20	18	14	
	SE	54	62	60	52	38	21	17	17	17	15	12	
	S	7	14	24	35	40	42	37	30	22	18	14	
	SW	5	7	9	12	20	45	65	79	78	68	49	
	W	5	8	9	12	14	23	50	81	100	114	90	
TYPE IV A ESSEX	N	5	5	7	9	11	13	14	16	16	15	18	
	E	80	73	63	40	21	19	20	21	19	17	14	
	SE	44	60	66	57	41	20	16	16	15	14	12	
	S	6	12	23	38	45	45	36	28	21	17	14	
	SW	4	6	8	11	18	50	71	77	68	58	42	
	W	4	7	8	11	13	23	55	81	87	94	69	
TYPE V PRISM B	N	5	5	8	10	12	14	15	16	16	15	18	
	E	98	88	69	41	22	20	21	21	19	17	14	
	SE	47	71	71	58	39	20	16	16	15	14	12	
	S	6	13	28	40	45	47	41	29	21	17	14	
	SW	4	6	8	11	19	51	76	88	71	58	42	
	W	4	7	9	12	14	24	60	96	105	94	69	

*Types designated by and data taken from A. S. H. & A. E. See Chapter 13, tables 19 to 23 "Heating, Ventilating, Air Conditioning Guide," 1957 for complete information.

†For descriptions of PC Decorative Blocks, see page 5.

Table assumes clear atmosphere, 75°F. indoor temperature, 18° declination north (for August 1), 40° north latitude.

For industrial atmospheres, reduce total heat gain 20% on east and west elevations, 5% on south elevations.

For each degree that design room temperature exceeds 75°F., subtract 0.5 from values shown. For each degree that outdoor dry bulb temperature exceeds 95°F., add 0.5 to values shown.

TYPICAL PANEL DETAILS

general notes

On the following two pages are shown elevations and sections of typical glass block panels. The large scale sections are typical head, jamb and sill details to show principles of construction only. Any structural members must be calculated for safe loading, and local building codes checked for any possible restrictions on panel sizes or detail. While single panels of glass block are limited to a maximum of 144 square feet, panels or curtain walls up to a maximum area of 250 square feet may be erected if properly braced to limit movement and settlement.

If chase construction as shown on this page cannot be used, substitute the panel anchor construction that is shown on page 10. Panel anchors are used to give lateral support for glass block panels.

Any glass block installation that is made in a frame construction shall have the wood adjacent to the mortar properly primed with Pittsburgh Corning Asphalt Emulsion.

Underwriters' Listing. PC Glass Block panels may be used for window openings subject to light fire exposure (Class F openings).

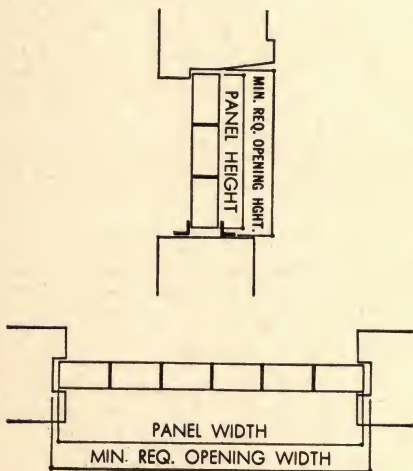
modular coordination

All PC Glass Blocks are made in modular coordinated sizes. They can be laid in the standard grid based on a module of 4 inches. Information on Modular Coordination can be obtained from the Modular Building Standards Association, 2029 K Street, N. W., Washington 6, D. C.

chase construction

Size Limitations

Maximum Area 144 Square Feet
Maximum Height 20 Feet
Maximum Width 25 Feet

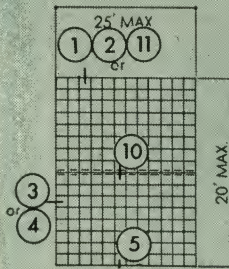
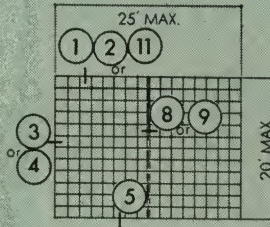


exterior panels

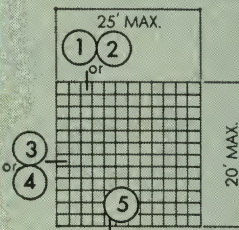
(for panels less than 100 sq. ft. see page 10)

individual panels

(250 sq. ft. max.)

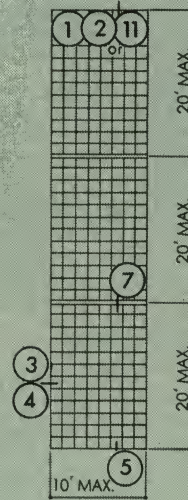


(144 sq. ft. max.)

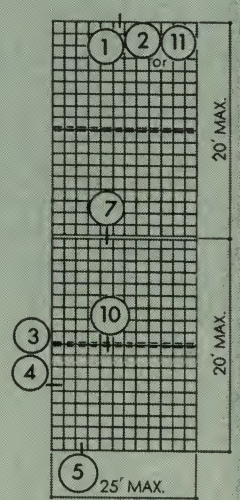


continuous panels

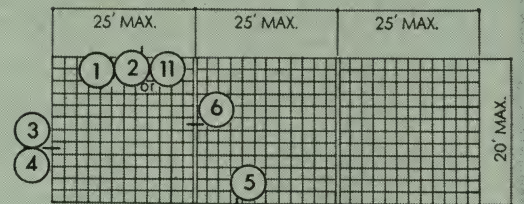
(each panel 144 sq. ft. max.)



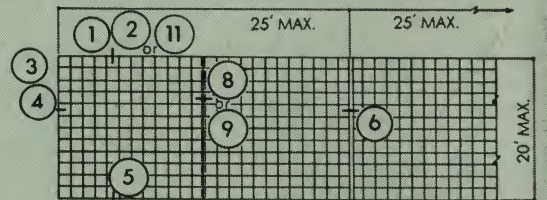
(each panel 250 sq. ft. max.)



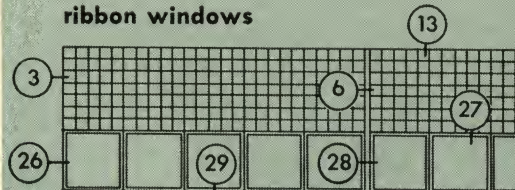
(each panel 144 sq. ft. max.)



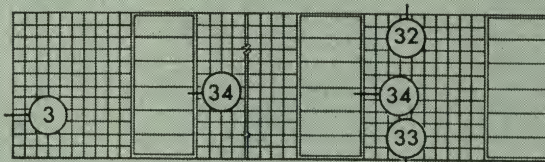
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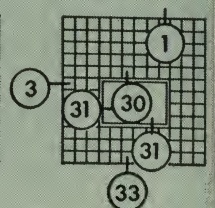
ribbon windows

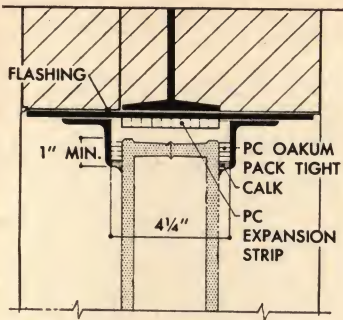


vertical windows

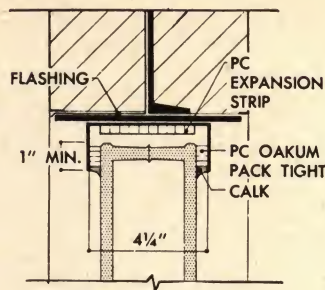


ventilators

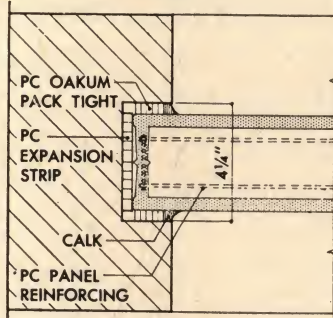




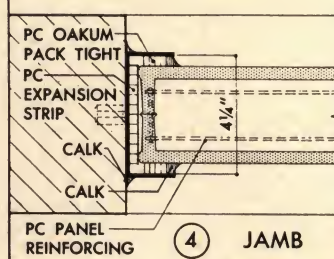
① HEAD



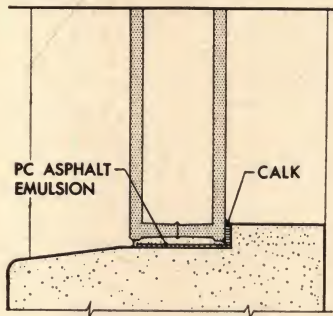
② HEAD



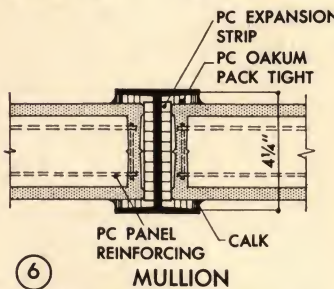
③ JAMB



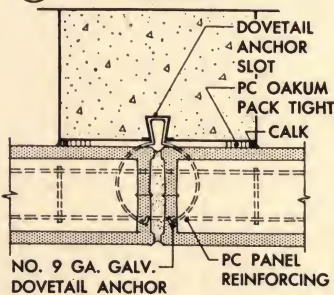
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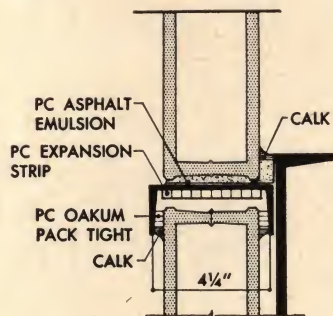
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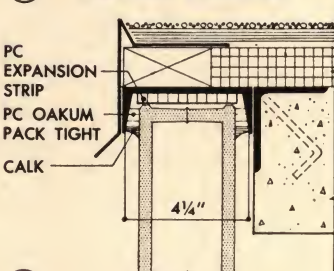
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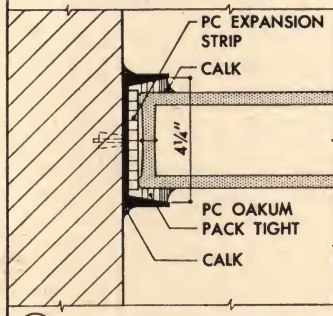
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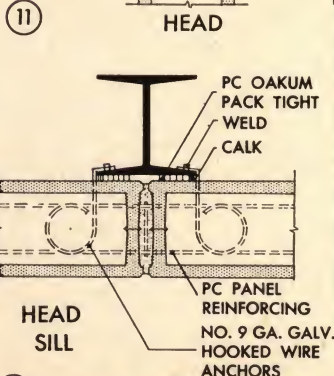
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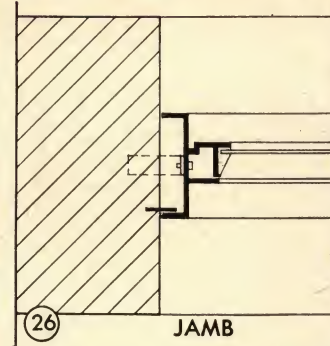
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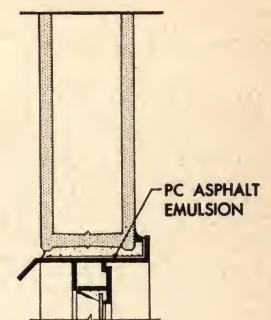
⑫ JAMB



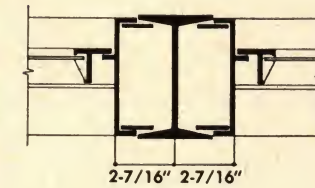
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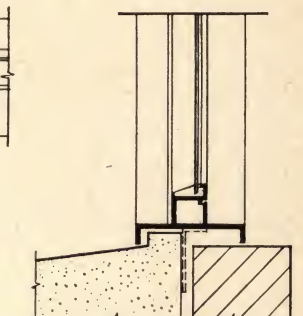
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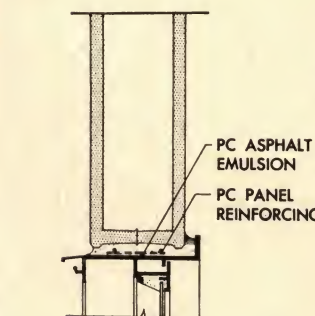
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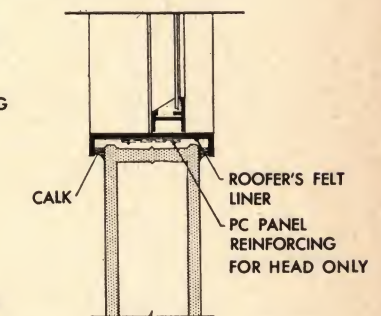
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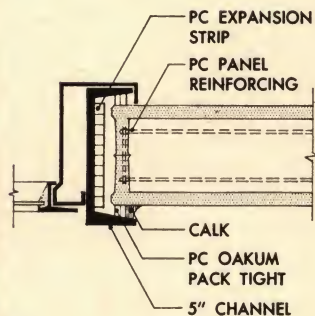
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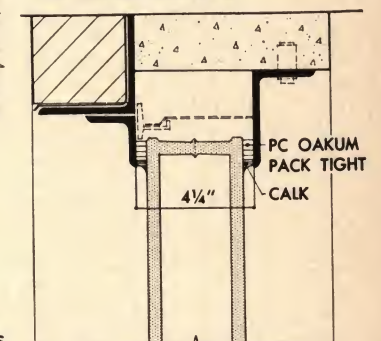
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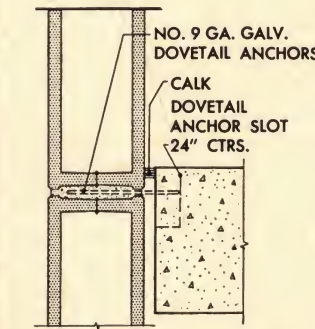
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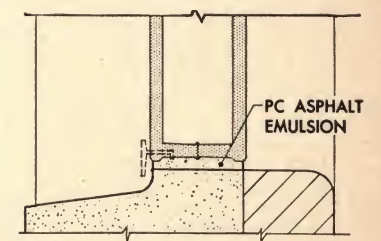
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③② HEAD



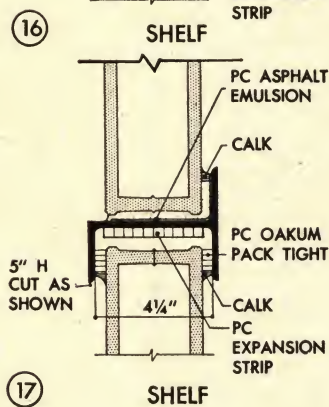
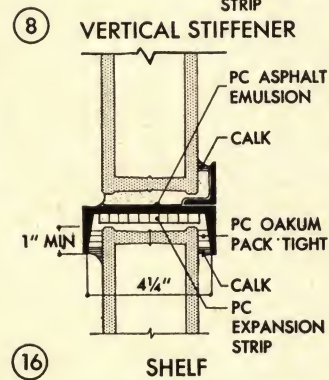
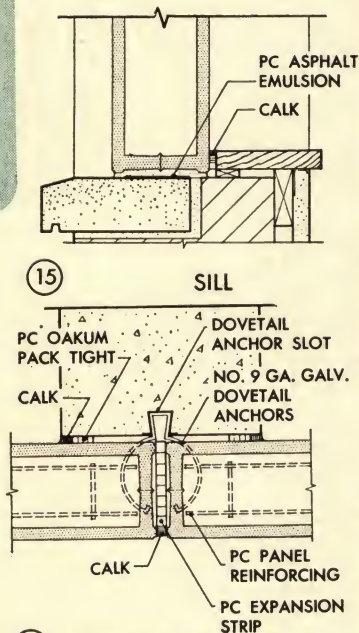
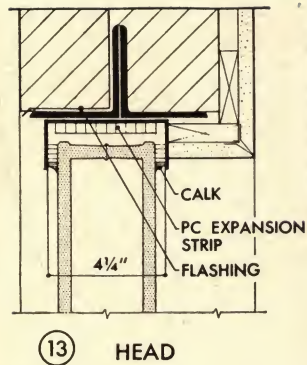
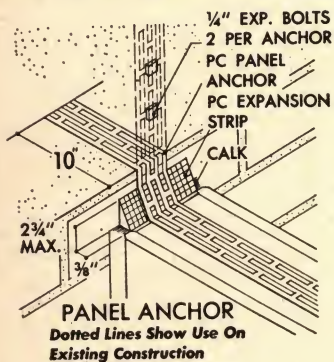
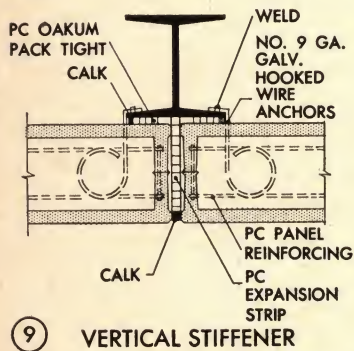
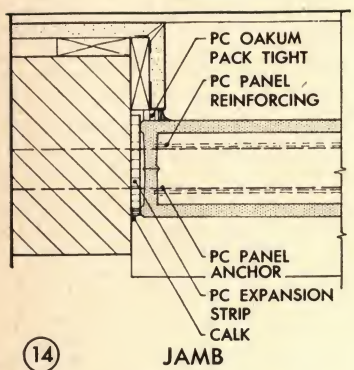
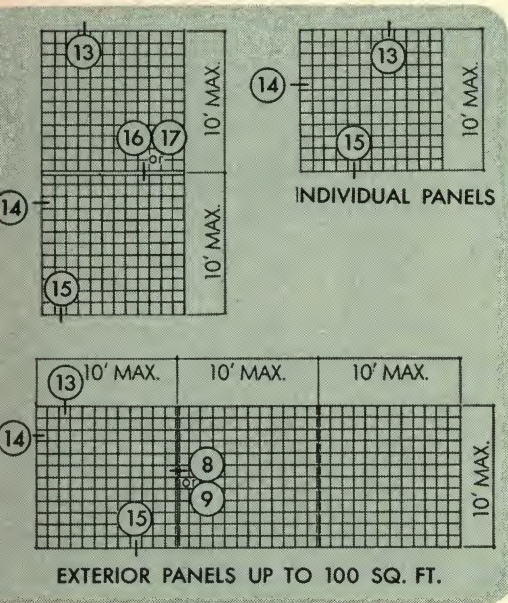
③③ SILL



③③ SILL

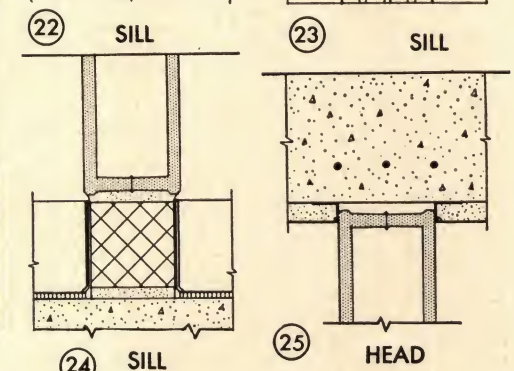
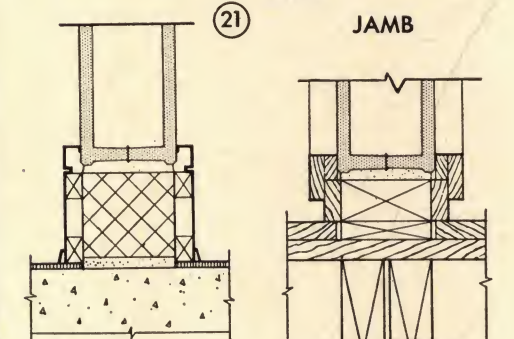
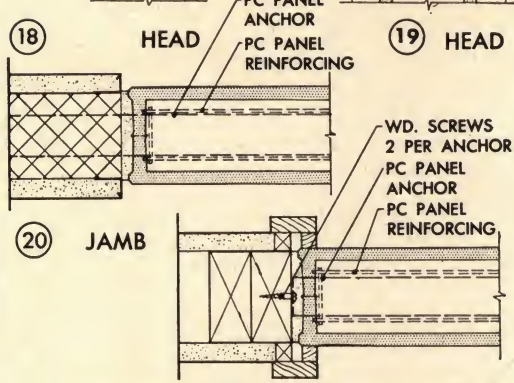
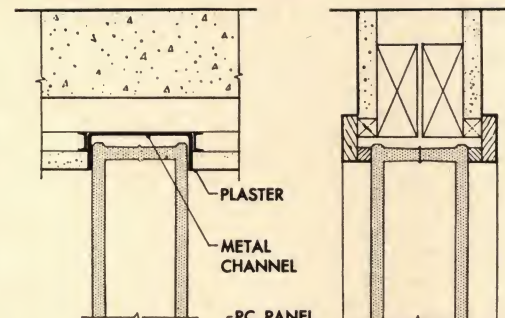
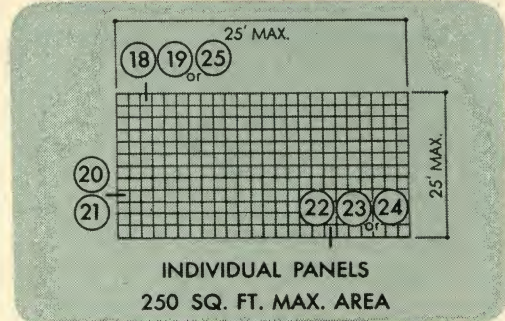
exterior panels

scale: 1½" = 1'0"



interior panels

scale: 1½" = 1'0"



SUGGESTED SPECIFICATIONS

general conditions: The "General Conditions" of the contract are a part of these specifications.

scope of the work: The contractor shall furnish all labor and materials to install all glass blocks, where shown on the drawings or specified hereinunder. This shall include the furnishing and installation of all expansion strips, oakum packing, panel reinforcing, panel anchors, calking, asphalt emulsion, and other labor materials necessary for a complete installation. This contract does not include the preparation of the structure to receive the glass block panels, such as chases, stiffeners, etc., except as hereinafter specified.

materials: Glass Blocks . . . shall be partially evacuated, hollow masonry units made of clear, colorless glass, as manufactured by the Pittsburgh Corning Corporation. These units shall be made by fusing two sections of pressed glass together at elevated temperatures. Edge construction of the units shall be such that a "key-lock" mortar joint is formed. Each unit shall be edge-coated with a resilient plastic to improve bond with mortar. Color Glass Blocks shall be as manufactured by Pittsburgh Corning Corporation and shall consist of a fired-on ceramic enamel coating on one face of a standard unit as described above.

patterns—sizes . . . shall be as shown on the drawings or as specified hereinunder: (Indicate PC patterns, sizes and locations. Where applicable indicate Soft-Lite Edge.)

expansion strips . . . where shown or required, shall be PC Expansion Strips as furnished by the Pittsburgh Corning Corporation.

asphalt emulsion . . . where shown or required, shall be PC Asphalt Emulsion as furnished by the Pittsburgh Corning Corporation.

panel reinforcing . . . shall be PC Panel Reinforcing of galvanized steel double wire mesh formed of two parallel wires (No. 9 gage) 2 in. on centers with electrically welded cross wires (No. 14 gage) at regular intervals. This reinforcing shall be embedded in horizontal mortar joints on approximately 24 in. centers, and in joints above and below all openings within panels. Reinforcing shall run continuously from end to end of panels and shall be lapped not less than 6 in. wherever it is necessary to use more than one length. Do not bridge expansion joints with reinforcing.

panel anchors . . . where shown on drawings shall be PC Panel Anchors as furnished by the Pittsburgh Corning Corporation and shall be No. 20 gage perforated steel strips 24 in. long by 1 3/4 in. wide galvanized after perforating. All panel anchors must be crimped within expansion joints, and shall generally be placed 24 in. apart occurring in the same joint as panel reinforcing and must be completely embedded in the mortar joint of the glass block panels.

mortar . . . shall be 1 part Portland Cement, 1/4 to 1 1/4 parts lime, and sand equal to between 2 1/4 and 3 times the amount of cementitious material (cement plus lime), all measured by volume, plus an integral type waterproofer. If a waterproof Portland Cement is used, the integral type waterproofer shall be omitted. For interior panels the waterproofer shall be omitted.

Admixtures in the form of setting accelerators and anti-freeze compounds shall not be used.

If desired, a mortar prepared from masonry cement meeting requirements of ASTM C-91, Type II, incorporating a metallic stearate-type waterproofer, and mixed in accordance with the manufacturer's recommendations is an acceptable alternate.

Any combinations of the above mortar mixes will fall within types A-1, A-2 or B mortar as recommended by the "American Standard Building Code Requirements for Masonry," and approved by the American Standards Association as American Standard A41.1 (as revised), or specifications for Mortar for Unit Masonry, ASTM Designation C-270.

mixing: The mortar shall be mixed to a consistency as stiff as will permit good working and shall be drier than mortar for ordinary brickwork. Retempering the mortar after it has taken its initial set shall not be permitted.

mortar type	proportions by volume			minimum compressive strength of 2" cube at 28 days (P.S.I.)
	portland cement	hydrated lime or lime putty (allowable range)	aggregate	
A-1	1	1/4*	between 2 1/4 and 3 times the volume of cementitious materials (cement plus lime)	2500
A-2	1	more than 1/4 but less than 1/2	between 2 1/4 and 3 times the volume of cementitious materials (cement plus lime)	1800
B	1	1/2 to 1 1/4	between 2 1/4 and 3 times the volume of cementitious materials (cement plus lime)	750

*maximum and minimum

portland cement . . . shall be Type 1 conforming to the Standard Specifications for Portland Cement, ASTM Designation C-150. If waterproof Portland Cement is used it shall be of a type as specified by the Architect. If desired, a waterproof, high early-strength Portland Cement may be used.

lime . . . shall be a high calcium lime, or a pressure-hydrated dolomitic lime, meeting the requirements of specifications for Hydrated Lime for Masonry Purposes, ASTM Designation C-207, Type S.

sand . . . shall conform with the Standard Specifications for Aggregate for Masonry Mortar, ASTM Designation C-144, for thin joints.

waterproofer . . . shall be PC Mortar Waterproofer Type NV-3389 (stearate). It shall be added to the mortar at the time of mixing and in the proportion shown on the can label, except where a waterproof Portland Cement or prepared waterproofed masonry cement mortar is used. In the latter cases, no waterproofer shall be added at the time of mixing.

oakum . . . where indicated on drawings or required as a lateral cushioning for glass block panels at jambs, heads and intermediate supports, shall be PC Oakum (non-staining, dry-rot treated, sliver type) as furnished by the Pittsburgh Corning Corporation.

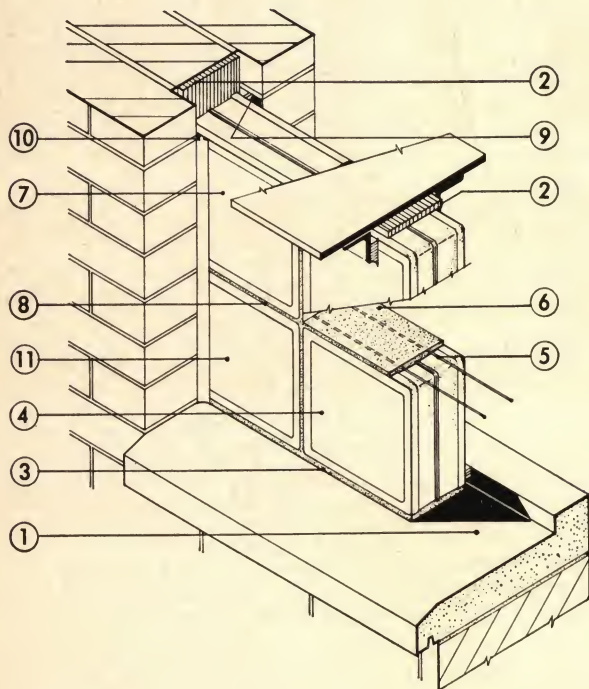
calking . . . shall be as specified by the Architect and shall be a non-staining, waterproof mastic. This shall be evenly applied to the full depth of recesses as indicated on the details.

flashings . . . Unless otherwise specified, contractor shall furnish and install in locations shown or where required, flashings as are necessary to provide a complete installation.

installation . . . Areas at the sill to be covered by mortar shall be given a heavy coat of asphalt emulsion which shall be allowed to dry before blocks are laid. Where required, expansion strips shall be adhered to head and jambs by the use of gobs of asphalt emulsion and shall run continuously from end to end of expansion space. All mortar joints must be completely filled with mortar and shall not be furrowed. Mortar must not bridge across expansion joints. Blocks shall be laid straight, plumb and true to dimensions, with 1/4 in., or as otherwise specified, visible width mortar joints. Joints shall be tooled smooth and slightly concave just before mortar attains initial set so that the exposed edges of the blocks are sharp, clean lines. The number of course of blocks laid in successive lifts shall be limited to prevent squeezing out of the mortar and movement of the blocks.

cleaning . . . Surplus mortar shall be removed and the faces of the blocks shall be wiped dry at the time joints are tooled. Cleaning is facilitated by the use of an ordinary household scrub brush having stiff bristles. Final cleaning shall be done by others after mortar has attained final set.

HOW TO INSTALL



1. Sill area to be covered by mortar shall have a heavy coat of PC Asphalt Emulsion.
2. Adhere PC Expansion Strips to jambs and head with PC Asphalt Emulsion. Make certain expansion strip extends to sill.
3. When emulsion on sill is dry, place full mortar bed joint—do not furrow.
4. Set lower course of block. All mortar joints must be full and not furrowed. Steel tools must not be used to tap blocks into position.
5. Install PC Panel Reinforcing in horizontal joints where required as follows:
 - (a) Place lower half of mortar bed joint. Do not furrow.
 - (b) Press panel reinforcing into place.
 - (c) Cover panel reinforcing with upper half of mortar bed and trowel smooth. Do not furrow.
 - (d) Panel reinforcing must run from end to end of panels and where used continuously must lap 6 inches. Reinforcing must not bridge expansion joints.
6. Place full mortar bed for joints not requiring panel reinforcing. Do not furrow.
7. Follow above instructions for setting succeeding courses of blocks.
8. Strike joints smoothly while mortar is still plastic and before final set. At this time rake out all spaces requiring calking to a depth equal to the width of the spaces. Remove surplus mortar from faces of glass blocks and wipe dry. Tool joints smooth and concave, before mortar takes final set.
9. After final mortar set pack PC Oakum tightly between glass block panel and jamb and head construction. Leave space for calking.
10. Calk panels as indicated on details.
11. Final cleaning of glass block faces shall not be done until after final mortar set.

NOTE: Good workmanship is essential to obtaining water-tight panels. This is particularly important in the construction of Glass Block Curtain Walls. Follow the installation procedure above and the specifications on Page 11.

ACCESSORY MATERIALS

PC asphalt emulsion—To be used on all sills to form a waterproof joint. Also used to adhere expansion strips to jambs and heads before installing glass blocks. See specifications (Page 11) for proper application. For sills and adhering of expansion strips estimate one (1) gallon for approximately 150 lin. ft. Available in one-quart, one-gallon and five-gallon containers.

PC mortar waterproofer—To be added to the mortar to conform with PC specifications. Use one (1) quart per bag of cement. Available in one-quart, one-gallon and five-gallon containers.

PC oakum—(Non-staining, dry-rot treated, sliver type)—To be used as a lateral cushioning for glass block panels by tightly packing between panel faces and the supporting structure. See details for proper application.

For packing both faces of panels laid up in $4\frac{1}{4}$ " wide chases, estimate $2\frac{1}{2}$ lbs. (one tube) for 30 lin. ft. of chase. Available in wound tubes, weighing $2\frac{1}{2}$ lbs. net, packaged in handy dispenser cartons. Six individually-packaged tubes per shipping carton.

PC expansion strips—To be used in expansion spaces at jambs and heads installed in accordance with PC specifications. Available in the following size: $\frac{3}{8}$ " x $4\frac{1}{8}$ " x 24" (for use in chase construction). For panel anchor construction, standard $4\frac{1}{8}$ " wide strips can easily be cut to 3" width required.

PC panel reinforcing—To be used in horizontal joints of glass block panels, spaced and installed in accordance with PC specifications. Panel Reinforcing is formed of two No. 9 gage galvanized wires spaced 2" apart with No. 14 gage galvanized cross wires welded every 8". Available in 8' lengths.

PC panel anchors—To be used where chase construction is not applicable for supporting panels up to 100 sq. ft. in area where permitted by building code requirements. Spaced and installed in accordance with PC specifications. Panel Anchors are No. 20 gage perforated steel galvanized after fabrication. Available in 2'-0" lengths, $1\frac{3}{4}$ " wide.

GENERAL OFFICES: Pittsburgh Corning Corporation · One Gateway Center · Pittsburgh 22, Pa.

DISTRICT OFFICES

ATLANTA 9, GEORGIA
968 Peachtree Street, N.E.
TRinity 2-4402

HOUSTON 2, TEXAS
1607 Jefferson Avenue
CApitol 7-1619

CHICAGO 6, ILLINOIS
Room 1526,
The Engineering Building
205 West Wacker Drive
FIanical 6-2376

MONTREAL, QUEBEC, CANADA
333 Cavendish Blvd.
HUnter 1-7038

NEW YORK 17, NEW YORK
579 Fifth Avenue
MUrray Hill 8-8350

PHILADELPHIA 2, PENNSYLVANIA
Room 1205, Lewis Tower Building
225 South Fifteenth Street
Kingsley 6-3510

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